

A Compact Back Face Cooled Slotted Infrared Mirror and Mechanism for the IR 13 Beamline at the SRS, CLRC Daresbury Laboratory

John Flaherty, Ian Burrows, Mark Surman

CLRC Daresbury Laboratory, Warrington, England, WA4 4AD

Phone +44 (0) 1925 603258; Fax +44 (0) 1925 603416

E-mail: j.flaherty@dl.ac.uk

Abstract

We report on the design and performance of a back face cooled slot relieved infrared mirror and mechanism for the IR 13 beamline at the Daresbury Laboratory SRS. The slot through the mirror allows the 12W/mRad heat load to pass straight through, avoiding severe distortion and damage to the optical face.

A compact fine resolution tilt mechanism and mirror is mounted on a bellows sealed long travel extraction mechanism. The installation position is close to the electron beam and very inaccessible. The extraction mechanism (which allows installation without venting the accelerator) needs to provide maximum stability. The coaxial tilt mechanism must permit extraction past the metal gate valve isolating the accelerator vacuum without disturbing the mirror setting.

Keywords: infrared, flexure, extractable

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